

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A process for producing a foam comprising at least 70% by weight of carbon by pyrolysis of polymer foams which comprise at least 30% by mass of a polymer material having a nitrogen content of more than 6% by mass and having a porosity of from 35% to 99.5% and an open cell content above 1%, have inorganics selected from the group consisting of zinc chloride, calcium carbonate, ammonium polyphosphate, expanded graphite and metal powders incorporated into the polymer foam and/or applied to the surface ~~and/or~~ and are treated during and/or after the pyrolysis with water vapor and/or carbon dioxide at above 400°C.

Claim 2 (Previously Amended): The process as claimed in claim 1, wherein the polymer foams comprise urea-formaldehyde resins.

Claim 3 (Previously Presented): The process as claimed in claim 1, wherein the polymer foams comprise melamine-formaldehyde resins.

Claim 4 (Previously Presented): The process as claimed in claim 1, wherein the polymer foams comprise polymeric isocyanate adducts.

Claim 5 (Previously Presented): The process as claimed in claim 1, wherein the polymeric isocyanate adducts comprise polyisocyanurate structures which have a ratio  $A_r$  of the absorbance of the isocyanurate band in the middle infrared region at about  $1410\text{ cm}^{-1}$  recorded by the pressed potassium bromide pellet technique after preparation to the

absorbance of the aromatic bands at about  $1600\text{ cm}^{-1}$  of greater than 1.5.

Claim 6 (Previously Presented): The process as claimed in claim 4, wherein the polymeric isocyanate adducts used are prepared by reacting polyisocyanates with themselves, with compounds containing hydrogen-active groups or with further compounds which react with isocyanate in the presence of catalysts, stabilizers, blowing agents and, if desired, further auxiliaries.

Claim 7 (Previously Presented): The process as claimed in claim 6, wherein hydroxyl-containing polymerization products having a molar mass of greater than  $200\text{ g/mol}$  and a functionality of greater than 1 are used as compounds containing hydrogen-active groups.

Claim 8 (Previously Presented): The process as claimed in claim 6, wherein polyesterols based on aromatic polycarboxylic acids and polyfunctional alcohols are used as compounds containing hydrogen-active groups.

Claim 9 (Currently Amended): The process as claimed in claim 4, wherein the ~~further compounds~~ polymeric isocyanate adducts are adducts of a polymeric isocyanate with one or more compounds which react with isocyanate and contain organic acid anhydride structures.

Claim 10 (Currently Amended): The process as claimed in claim 4, wherein the ~~further compounds~~ polymeric isocyanate adducts are adducts of a polymeric isocyanate with

one or more compounds which react with isocyanate and contain epoxide structures.

Claim 11 (Previously Presented): The process as claimed in claim 1, wherein at least one compound having a crown ether structure is used as catalyst.

Claim 12 (Previously Presented): The process as claimed in claim 1, wherein as yet uncured phenolic resin components are employed in addition to the polymer foams used.

Claim 13 (Previously Presented): The process as claimed in claim 1, wherein inorganic salts, metal powders or expanded graphite are used as fillers in the preparation of the polymer foams used in an amount of from 0.1% by mass to 60% by mass, based on the total mass of the polymer foams.

Claim 14 (Previously Presented): The process as claimed in claim 1, wherein the polymer foams used are impregnated with solutions or dispersions of inorganic salts, metal powders or expanded graphite in water or organic solvents in such a way that an amount of from 0.1% by mass to 60% by mass of the inorganics remains on the foam after evaporation of the solvent.

Claim 15 (Previously Presented): The process as claimed in claim 1, wherein the inorganic salts used are zinc chloride and/or calcium carbonate and/or ammonium polyphosphate.

Claim 16 (Currently Amended): The process as claimed in claim 1, wherein the pyrolysis of the polymer foams is carried out by heating from room temperature to over

500°C and then from a temperature of above 500°C to a temperature of 3000°C.

Claim 17 (Previously Presented): The process as claimed in claim 1, wherein heating is carried out at heating rates of from 0.05 K/min to 10 K/min during the pyrolysis.

Claim 18 (Previously Presented): The process as claimed in claim 1, wherein the pyrolysis of the polymer foams is carried out in an atmosphere of nitrogen and/or noble gases.

Claim 19 (Previously Presented): The process as claimed in claim 1, wherein the pyrolysis of the polymer foams is carried out by heating from room temperature to a temperature in the range from 400°C to 1200°C in nitrogen and/or noble gas and at higher temperatures in a mixture of water vapor with nitrogen and/or noble gas containing from 0.5% by volume to 80% by volume of water vapor.

Claim 20 (Previously Presented): The process as claimed in claim 1, wherein the pyrolysis of the polymer foams is carried out by heating from room temperature to a temperature in the range from 400°C to 1500°C in nitrogen and/or noble gas and at higher temperatures in a mixture of carbon dioxide and nitrogen and/or noble gas containing over 1% by volume of carbon dioxide.

Claim 21 (Previously Presented): The process as claimed in claim 1, wherein the pyrolysis of the polymer foams is carried out by heating from room temperature to a temperature in the range from 400°C to 1500°C in nitrogen and/or noble gas and at higher

temperatures in carbon dioxide.

Claim 22 (Previously Presented): The process as claimed in claim 1, wherein the foam comprising at least 70% by weight of carbon is firstly produced by pyrolysis in nitrogen and/or noble gas and is subsequently treated at above 500°C with a mixture of water vapor and nitrogen and/or noble gas containing from 1% by volume to 80% by volume of water vapor.

Claim 23 (Previously Presented): The process as claimed in claim 1, wherein the foam comprising at least 70% by weight of carbon is firstly produced by pyrolysis in nitrogen and/or noble gas and is subsequently treated at above 500°C with a mixture of carbon dioxide and nitrogen and/or noble gas containing over 1% by volume of carbon dioxide.

Claim 24 (Previously Presented): The process as claimed in claim 1, wherein the foam comprising at least 70% by weight of carbon is firstly produced by pyrolysis in nitrogen and/or noble gas and is subsequently treated at above 500°C with carbon dioxide.

Claim 25 (Previously Presented): The process as claimed in claim 1, wherein the pyrolysis of the polymer foams is carried out in the temperature range from room temperature to 1500°C in the presence of oxygen in an amount of from 0.05% by volume to 30% by volume, based on the total amount of gas.

Claim 26 (Previously Presented): The process as claimed in claim 1, wherein the flow rate of the gas streams during the pyrolysis or the after-treatment of the foam comprising at least 70% by weight of carbon is from 0.01 liter per hour to 10 liters per minute

and gram of foam.

Claim 27 (Original): A foam comprising at least 70% by weight of carbon and having a mean cell size above 20  $\mu\text{m}$ , a porosity based on this cell size of from 35% to 99.5% and an open cell content above 90%, an internal surface area above 50  $\text{m}^2/\text{g}$ , having cell struts whose cross section is a triangle having concave sides and having pores in the cell framework material having dimensions of from 0.2 nm to 50 nm and a volume of from 0.01  $\text{cm}^3/\text{g}$  to 0.8  $\text{cm}^3/\text{g}$ , produced according to claim 1.

Claim 28 (Previously Presented): A method comprising utilizing the foam as claimed in claim 27 for electrical and electrochemical applications, as filter and thermal insulation material, as support and storage material and as starting material for further reactions.

Claim 29 (Previously Presented): A method comprising utilizing the foam as claimed in claim 27 as electrode material for supercapacitors and/or in fuel cells.

Claim 30 (Previously Presented): A method comprising a pulverulent material obtained from a foam produced by the process as claimed in claim 7 as an electrode material for supercapacitors and/or fuel cells.

Claim 31 (New): A process for producing a foam comprising at least 70% by weight of carbon by pyrolysis of a polymer foam which comprises at least 30% by mass of a polymer material having a nitrogen content of more than 6% by mass and having a porosity of from 35% to 99.5% and an open cell content above 1%, have inorganics selected from the

group consisting of zinc chloride, calcium carbonate, ammonium polyphosphate, expanded graphite and metal powders incorporated into the polymer foam and/or applied to the surface and/or are treated during and/or after the pyrolysis with water vapor and/or carbon dioxide at above 400°C,

wherein the polymer foam comprises a member selected from urea-formaldehyde resins, melamine-formaldehyde resins and polymeric isocyanate adducts.

wherein the polymeric isocyanate adducts comprise polyisocyanurate structures which have a ratio  $A_r$  of the absorbance of the isocyanurate band in the middle infrared region at about  $1410\text{ cm}^{-1}$  recorded by the pressed potassium bromide pellet technique after preparation to the absorbance of the aromatic bands at about  $1600\text{ cm}^{-1}$  of greater than 1.5.

Claim 32 (New): The process as claimed in claim 31, wherein at least one compound having a crown ether structure is used as catalyst.

Claim 33 (New): The process as claimed in claim 31, wherein as yet uncured phenolic resin components are employed in addition to the polymer foams used.

Claim 34 (New): The process as claimed in claim 31, wherein inorganic salts, metal powders or expanded graphite are used as fillers in the preparation of the polymer foams used in an amount of from 0.1% by mass to 60% by mass, based on the total mass of the polymer foams.

Claim 35 (New): The process as claimed in claim 31, wherein the polymer foams used are impregnated with solutions or dispersions of inorganic salts, metal powders or expanded graphite in water or organic solvents in such a way that an amount of from 0.1% by

mass to 60% by mass of the inorganics remains on the foam after evaporation of the solvent.

Claim 36 (New): The process as claimed in claim 31, wherein the inorganic salts used are zinc chloride and/or calcium carbonate and/or ammonium polyphosphate.

Claim 37 (New): The process as claimed in claim 31, wherein the pyrolysis of the polymer foams is carried out by heating from room temperature to above 500°C, then at a temperature of from above 500°C to a temperature of 3000°C.

Claim 38 (New): The process as claimed in claim 31, wherein heating is carried out at heating rates of from 0.05 K/min to 10 K/min during the pyrolysis.

Claim 39 (New): The process as claimed in claim 31, wherein the pyrolysis of the polymer foams is carried out in an atmosphere of nitrogen and/or noble gases.

Claim 40 (New): The process as claimed in claim 31, wherein the pyrolysis of the polymer foams is carried out by heating from room temperature to a temperature in the range from 400°C to 1200°C in nitrogen and/or noble gas and at higher temperatures in a mixture of water vapor with nitrogen and/or noble gas containing from 0.5% by volume to 80% by volume of water vapor.

Claim 41 (New): The process as claimed in claim 31, wherein the pyrolysis of the polymer foams is carried out by heating from room temperature to a temperature in the range from 400°C to 1500°C in nitrogen and/or noble gas and at higher temperatures in a mixture of carbon dioxide and nitrogen and/or noble gas containing over 1% by volume of carbon



dioxide.

Claim 42 (New): The process as claimed in claim 31, wherein the pyrolysis of the polymer foams is carried out by heating from room temperature to a temperature in the range from 400°C to 1500°C in nitrogen and/or noble gas and at higher temperatures in carbon dioxide.

Claim 43 (New): The process as claimed in claim 31, wherein the foam comprising at least 70% by weight of carbon is firstly produced by pyrolysis in nitrogen and/or noble gas and is subsequently treated at above 500°C with a mixture of water vapor and nitrogen and/or noble gas containing from 1% by volume to 80% by volume of water vapor.

Claim 44 (New): The process as claimed in claim 31, wherein the foam comprising at least 70% by weight of carbon is firstly produced by pyrolysis in nitrogen and/or noble gas and is subsequently treated at above 500°C with a mixture of carbon dioxide and nitrogen and/or noble gas containing over 1% by volume of carbon dioxide.

Claim 45 (New): The process as claimed in claim 31, wherein the foam comprising at least 70% by weight of carbon is firstly produced by pyrolysis in nitrogen and/or noble gas and is subsequently treated at above 500°C with carbon dioxide.

Claim 46 (New): The process as claimed in claim 31, wherein the pyrolysis of the polymer foams is carried out in the temperature range from room temperature to 1500°C in the presence of oxygen in an amount of from 0.05% by volume to 30% by volume, based on

the total amount of gas.

Claim 47 (New): The process as claimed in claim 31, wherein the flow rate of the gas streams during the pyrolysis or the after-treatment of the foam comprising at least 70% by weight of carbon is from 0.01 liter per hour to 10 liters per minute and gram of foam.